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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,722	02/20/2004	Hirofumi Honda	Q79793	4189

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EXAMINER

DHARIA, PRABODH M

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/781,722	Applicant(s) HONDA ET AL.	
	Examiner Prabodh M. Dharia	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. **Status:** Please all the replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 03-05-2007 under amendments, which have been placed of record in the file. Claims 1-20 are pending in this action.

Response to Amendment

2. The amendment filed 03-05-2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as underline bold limitations follows: page 3 of the listing of claims; Claim 1, Lines 11-15, "**an address component for dividing at least one of said plurality of subfields into M subsubfields** and performing, for the different display line group a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group in said **M subsubfields**, and" There is nowhere in the disclosure recites or discloses the subfield are further divided in the sub-subfields.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. Applicant has labeled drawings 1 and 2 as prior art per objection therefore objection to drawing is withdrawn. Applicant has amended abstract per objection. Therefore objection to abstract is withdrawn. Accordingly, claims 1-20 are currently pending in the application, of which claims 1, and 16 are independent claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 2003/0006994 A1) in view of Tokunaga et al. (US 2002/005400 A1).

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipate by Suzuki (US 2003/0006994 A1).

Regarding Claim 1, Suzuki teaches a display panel (page 2, paragraph 27, Lines 1-4 see figure 1, item# 10) drive for tone-driving (page 2, paragraph 27, Lines 4-8, paragraph 31, Item # 30), responding to pixel data based on a video signal (page 2, paragraph 34-36), a display panel in which a field display period of the video signal is constituted by a plurality of subfields (page 3, paragraph 54, Lines 1-4), and pixel cells each carrying a pixel for n (where n is a natural number) display lines are arranged (page 2, paragraph 28), the display panel drive (page 2, paragraph 27, Lines 4-8, paragraph 31, Item # 30), comprising: a multi-grayscale component for deriving multi-grayscale pixel data by adding each different offset value to the pixel data (page 9, paragraph 221, Lines 23-57) corresponding to a display line group (page 9, paragraph 221, Lines 23-57) including [M.multidot.(k-1)+1]th display lines (where M is a natural number, and k is a natural number of n/M or smaller) of the display panel, a display line group including

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[M.multidot.(k-1)+2]th display lines thereof, a display line group including [M.multidot.(k-1)+3]th display lines thereof; . . . , a display line group including [M.multidot.(k-1)+M]th display lines thereof (pages 6-8, paragraphs 131-207, page 9, paragraph 221, Lines 22-57 teaches a specific group of lines with assigned group pixels will be processed adding dither coefficients or offset to improve brightness and resolution of an image of a display); and an address component for performing a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group each different in at least M of the subfields (page 5, paragraphs 113-117).

However, Suzuki fails to recite an address component for dividing at least one of said plurality of subfields into M sub-subfields and performing, for the different display line group a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group in said M sub-subfields and a lighting emission sustaining component for weighting said display line groups with different brightness values, respectively.

However, Tokunaga et al. discloses an address component (page 12, paragraphs 250251,268) for dividing at least one of said plurality of subfields into M sub-subfields (page 5, paragraphs 106,107, please see figures 10-13) and performing, for the different display line group a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group in said M sub-subfields (see figure 10-13, page 5, paragraphs 103-111, page 6, paragraphs 112-142, page 7,8 paragraphs 180,181 and 175) and a lighting emission sustaining component for

weighting said display line groups with different brightness values, respectively (page 1, paragraph 15, page 13,14 claims 1,5 and page 15, claims 18,19).

Reason to combine Tokunaga et al. teaching as to dividing subfield in to further group of subfield and adding offset to achieve uniform contrast or avoid the brightness level of an image displayed by the pixel data is lower than a prescribed brightness and when the brightness level of the image falls within a prescribed intermediate brightness range.(page 8, paragraph 181,182, page 9, paragraphs 200,201, abstract and page 1, paragraphs 14-16).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Tokunaga et al. in to the teaching of Suzuki to be able to have a plasma display panel using method of dividing a subfield in to group of sub-subfields which is capable of improving contract, reducing power consumption, and preventing a pseudo-contour (page 1, paragraph 14-16).

Regarding Claim 2, Tokunaga et al. discloses an address component (page 12, paragraphs 250251,268) for dividing at least one of said plurality of subfields into M sub-subfields (page 5, paragraphs 106,107, please see figures 10-13).

Regarding Claim 3, Suzuki teaches the multi-grayscale component further comprises dither addition component for generating a dither coefficient in a corresponding manner to any adjacent pixel position in a pixel cell group of i-line by j-column, and adding the result to the pixel data (page 8, paragraphs 208-211, pages 8,9 paragraph 221)

Regarding Claim 4, Suzuki teaches the dither addition component changes, on a field basis of the video signal, the dither coefficient derived in the corresponding manner to the pixel position in the pixel cell group (pages 8,9, paragraph 221).

Regarding Claim 5, Suzuki teaches sustain component causes only the pixel cells in the lighting mode in each of the subfields to emit light over a light emission period assigned to the corresponding subfield (page 5, paragraph 116, Lines 9-22, page 3, paragraph 54, pages 4,5, paragraph 86-113), wherein a ratio among the light emission periods of the subfields is non-linear (Col. 10, paragraph 4, Lines 2-15, pages 3,4, paragraphs 54-80).

Regarding Claims 6 and 7, Suzuki teaches the subfield having assigned with the shorter light emission period in one field display period is arranged toward the front (pages 4,5, paragraph 86-113).

Regarding Claims 8,9, and 10, Suzuki teaches reset component for setting all of the pixel cells to the lighting mode in the subfield locating in the field front (page 4, paragraph 80, Lines 1-5), wherein the address component selectively shifts, to the extinction mode, the pixel cells in any one of the subfields in the subfields depending on the multi-grayscale pixel data (page 3, paragraph 54, Lines 5-13, page 5, paragraph 116, Lines 1-8).

Regarding Claims 11 and 12 Suzuki teaches the subfield having assigned with the longer light emission duration in one field display period is arranged nearer to a head of the subfields

(page 5, paragraph 116, Lines 22-28, maintained to emit light continuously).

Regarding Claims 13,14 and 15, Suzuki teaches reset component for setting all of the pixel cells to the extinction mode in the subfield locating in the field front, wherein the address component selectively shifts, to the lighting mode, the pixel cells in any one of the subfields in the subfields depending on the multi-grayscale pixel data (page 5, paragraph 116,117).

Regarding Claim 16, Suzuki teaches a display panel (page 2, paragraph 27, Lines 1-4 see figure 1, item# 10) drive for tone-driving (page 2, paragraph 27, Lines 4-8, paragraph 31, Item # 30), responding to pixel data based on a video signal (page 2, paragraph 34-36), a display panel in which a field display period of the video signal is constituted by a plurality of subfields (page 3, paragraph 54, Lines 1-4), and pixel cells each carrying a pixel for n (where n is a natural number) display lines are arranged (page 2, paragraph 28), the display panel drive comprising: a multi-grayscale component for deriving multi-grayscale pixel data by adding each different offset value to the pixel data (page 9, paragraph 221, Lines 23-57) corresponding to a display line group (page 9, paragraph 221, Lines 23-57) a display line group (page 9, paragraph 221, Lines 23-57) including $[M \cdot (k-1) + 1]$ th display lines (where M is a natural number, and k is a natural number of n/M or smaller) of the display panel, a display line group including $[M \cdot (k-1) + 2]$ th display lines thereof, a display line group including $[M \cdot (k-1) + 3]$ th display lines thereof; . . . , a display line group including $[M \cdot (k-1) + M]$ th display lines thereof (pages 6-8, paragraphs 131-207, page 9, paragraph 221, Lines 22-57 teaches a specific group of lines with assigned group pixels will be processed adding dither coefficients or

offset to improve brightness and resolution of an image of a display); and an address component for performing a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group each different in at least M of the subfields (page 5, paragraphs 113-117).

However, Suzuki fails to recite an address component for dividing at least one of said plurality of subfields into M sub-subfields and performing, for the different display line group a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group in said M sub-subfields and a lighting emission sustaining component for weighting said display line groups with different brightness values, respectively.

However, Tokunaga et al. discloses an address component (page 12, paragraphs 250251,268) for dividing at least one of said plurality of subfields into M sub-subfields (page 5, paragraphs 106,107, please see figures 10-13) and performing, for the different display line group a lighting mode setting or an extinction mode setting based on the multi-grayscale pixel data with respect to each of the pixel cells belonging to the corresponding display line group in said M sub-subfields (see figure 10-13, page 5, paragraphs 103-111, page 6, paragraphs 112-142, page 7,8 paragraphs 180,181 and 175) and an light emission driving component for emitting the pixel cells depending on the multi-grayscale pixel data by weighting the display line groups each differently in luminance (page 1, paragraph 15, page 13,14 claims 1,5 and page 15, claims 18,19).

Reason to combine Tokunaga et al. teaching as to dividing subfield in to further group of subfield and adding offset to achieve uniform contrast or avoid the brightness level of an image

displayed by the pixel data is lower than a prescribed brightness and when the brightness level of the image falls within a prescribed intermediate brightness range.(page 8, paragraph 181,182, page 9, paragraphs 200,201, abstract and page 1, paragraphs 14-16).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Tokunaga et al. in to the teaching of Suzuki to be able to have a plasma display panel using method of dividing a subfield in to group of sub-subfields which is capable of improving contract, reducing power consumption, and preventing a pseudo-contour (page 1, paragraph 14-16).

Regarding Claim 17, Suzuki teaches the light emission driving component (page 2, paragraph 27, Lines 4-8, paragraph 31) includes: an address (page 2, paragraph 27, Lines 4-8) component for performing, based on the multi-grayscale pixel data (page 2, paragraph 36, page 3, paragraph 53, page 4, paragraphs 81,83,84), a lighting mode setting or an extinction mode setting with respect to each of the pixel cells on a display line group basis (page 2, paragraph 36, page 3, paragraph 53, page 4, paragraphs 81,83-85); and a sustain component for emitting only the pixel cells in the lighting mode over a predetermined period every time the setting to the display line groups is done (page 4, paragraph 81-85, page 5, paragraphs 113-117).

Regarding Claim 18, Suzuki teaches the address component changes an execution order of the setting to the display line groups on a field basis of the video signal (page 5, paragraphs 114-117).

Regarding Claim 19, Suzuki teaches the multi-grayscale component further comprises dither addition component for generating a dither coefficient in a corresponding manner to any adjacent pixel position in a pixel cell group of i-line by j-column, and adding the result to the pixel data (page 8, paragraphs 208-211, Col. 9, paragraph 221, Lines 23-57).

Regarding Claim 20, Suzuki teaches the dither addition component changes, on a field basis of the video signal, the dither coefficient derived in the corresponding manner to the pixel position in the pixel cell group (page 8, paragraphs 208-211, Col. 9, paragraph 221).

Response to Arguments

7. Applicant's arguments, see remark, filed 03-05-2007, with respect to the amended claim(s) 1 and 16 under 35 U.S.C. 102(e) as being anticipate by Suzuki (US 2003/0006994 A1) have been fully considered and are persuasive. However, upon further consideration, a new ground(s) of rejection is made in view of Tokunaga et al. (US 2002/005400 A1).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kubota, Yasushi et al. (US 2002/0149606 A1) Image display panel, image display apparatus and image display method.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668.

The examiner can normally be reached on M-F 8AM to 5PM.

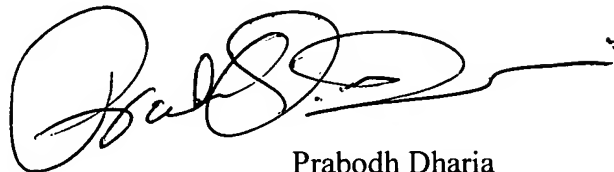
10. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

A handwritten signature in black ink, appearing to read 'Prabodh Dharia', with a long horizontal line extending to the right.

Prabodh Dharia

AU2629

Partial Signatory Authority

April 10, 2007